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EXAMINER
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JASON ALEXANDER CU,  
CHRISTOPHER JOHN CRONE,  
and ANDREI FEDOROVICH LURIE

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Appeal 2009-000772  
Application 09/820,451  
Technology Center 2100

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Decided: February 24, 2010

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Before JAMES D. THOMAS, LANCE LEONARD BARRY, and  
HOWARD B. BLANKENSHIP, *Administrative Patent Judges*.

BLANKENSHIP, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-26, which are all of the pending claims in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

*Invention*

Appellants' invention relates to a method and system for utilizing a column function for a relational database in a structure query language (SQL) environment. The column function is capable of performing an operation on an indeterminate number of entries. The relational database utilizes data including a plurality of entries capable of being organized into at least one column and at least one row. The method and system include allowing a user to specify the at least one row as an argument for a generalized scalar function and simulating a column environment for the at least one row using the generalized scalar function to allow the at least one row to be provided to the column function as though the at least one row was a column. The method and system also include performing the column function on the at least one row to provide at least one output. Abstract.

*Representative Claim*

1. A method for utilizing a column function for a relational database in a structure query language (SQL) environment, the column function capable of performing an operation on an indeterminate number of entries, the relational database utilizing data including a plurality of entries being organized into at least one column and at least one row, the method comprising the steps of:
  - (a) allowing a user to specify the at least one row as an argument for a generalized scalar function;
  - (b) simulating a column environment for the at least one row using the generalized scalar function to allow the at least one row to

be provided to the column function as though the at least one row was a column; and

(c) performing the column function on the at least one row to provide at least one output.

*Prior Art*

Melton

6,289,336 B1

Sep. 11, 2001

*Examiner's Rejections*

Claims 1-26 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 1-26 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Melton.

The Examiner's objection to the Specification is a matter for petition, not a ground of rejection for review on appeal. *See Manual of Patent Examining Procedure* (MPEP) §§ 706.01, 1002.02(c), and 1201 (Eighth ed., Rev. 7, Jul. 2008).

ISSUES

(1) Have Appellants shown that the Examiner erred in concluding that claim 1 does not recite statutory subject matter?

(2) Have Appellants shown that the Examiner erred in concluding that claims 1 and 6 are indefinite?

(3) Have Appellants shown that the Examiner erred in finding that Melton discloses a column function as recited in claim 1?

## ANALYSIS -- § 101

### *Claim Grouping*

Based on Appellants' arguments in the Appeal Brief, we will decide the appeal with respect to the § 101 rejection on the basis of claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

### *Section 101 rejection of claim 1*

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. “[N]o patent is available for a discovery, however useful, novel, and nonobvious, unless it falls within one of the express categories of patentable subject matter of 35 U.S.C. § 101 . . . .” *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483 (1974).

If claim 1 is directed to statutory subject matter, the claim falls within the statutory class of “process.” A process is “an act, or a series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing.” *Cochrane v. Deener*, 94 U.S. 780, 788 (1877). “Transformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.” *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972)).

Our reviewing court recently held that the “useful, concrete and tangible result” inquiry, first set forth in *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994) (en banc), is inadequate to determine whether a claim is patent-eligible under 35 U.S.C. § 101. *See In re Bilski*, 545 F.3d 943, 959-60 (Fed. Cir. 2008) (en banc) *cert. granted*, 129 S. Ct. 2735 (U.S. June 1, 2009) (No. 08-964). The Supreme Court’s “machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101.” *Id.* at 956. “A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” *Id.* at 954.

Appellants do not appear to argue that the method is tied to a particular machine or apparatus. Appellants contend that claim 1 provides a function in a computer system. Appellants have not shown that the computer system is a particular machine, rather than a general purpose computer system.

Claim 1, however, also fails the second branch of the “machine-or-transformation” test. The claim does not contain or require an *article* that is transformed and reduced “to a different state or thing.” *See Diamond v. Diehr*, 450 U.S. at 184.

In *Bilski*, our reviewing court identified a circumstance in which *electronic* transformation of *data* into *a particular visual depiction of a physical object on a display* may be considered a transformation sufficient to render a claimed process patent-eligible. *See Bilski*, 545 F.3d at 962-63 (discussing *In re Abele*, 684 F.2d 902, 908-09 (CCPA 1982)). Even if the method of claim 1 were limited to being implemented on a general purpose

computer, “simulating a column environment” and “performing the column function on the at least one row to provide at least one output” does not appear to be a type of data “transformation” that is recognized by our reviewing court, or by the U.S. Supreme Court, sufficient to render a claimed method patent-eligible.

The inquiry into whether a given claim would pre-empt all uses of a fundamental principle (i.e., law of nature, natural phenomenon, or abstract idea) is “hardly straightforward.” *Bilski*, 545 F.3d at 954; *see also id.* at 952 n.5. However, the Supreme Court’s “machine-or-transformation” test determines “whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself.” *Id.* at 954. As claim 1 fails the “machine-or-transformation” test, the claim pre-empts a fundamental principle, rather than being limited to a particular application of the principle.

*Section 101 rejection of claims 8, 15, and 25*

Appellants’ remarks in support of independent claims 8, 15, and 25 are not sufficient for separate consideration of the claims under the applicable rules. *See* Br. 14-15; *cf.* 37 C.F.R. § 41.37(c)(1)(vii). However, we make the following observations.

Claim 25 is a method claim, which would be subject to the same analysis with respect to whether “(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” *Bilski*, 545 F.3d at 954.

Claim 8 purports a “computer-readable medium containing a program.” The Specification states (at 11:7-9), unequivocally, that a “computer-readable medium” is intended to include a computer readable signal that can be transmitted over a network. A transitory, propagating signal is not statutory subject matter because it does not fall within any of the four categories of statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1357 (Fed. Cir. 2007). Claim 8 and its dependent claims are thus not directed to statutory subject matter because the claims encompass a signal.

According to Appellants, “[c]laim 15 recites an analogous [to claim 1] system that includes a column function, a generalized scalar function and an interface.” Br. 14. Appellants do not allege that the “system” of claim 15 is statutory because it falls within a particular statutory class (e.g., machine or manufacture). Moreover, the claim appears so broad (*see, e.g.,* instant Fig. 5) as to encompass mere software modules for the “user interface” and the two “functions.” Software *per se* or a computer program *per se* does not fall within a statutory class. “The four categories [of § 101] together describe the exclusive reach of patentable subject matter. If a claim covers material not found in any of the four statutory categories, that claim falls outside the plainly expressed scope of § 101 even if the subject matter is otherwise new and useful.” *Nuijten*, 500 F.3d at 1354. *See also* MPEP § 2106.01, heading I (“USPTO personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program’s functionality, as nonstatutory functional descriptive material.”).



*Section 101 -- Conclusion*

Based on our consideration of representative claim 1, we conclude that claims 1-26 are not directed to statutory subject matter in accordance with 35 U.S.C. § 101.

ANALYSIS -- § 112

*Section 112, second paragraph rejection of claims 1, 8, and 15*

The Examiner finds that the structure of the claimed generalized scalar function recited in claims 1, 8, and 15 is unknown. The Examiner further asks how could the generalized scalar function transform the at least one row to simulate a column environment for the row as though the row was a column. Ans. 8.

Appellants rely on the Specification as amended to show that the meaning of the generalized scalar function is clear and definite to one of ordinary skill in the art. Br. 16. The Specification as amended on October 6, 2003, at page 8, states that “the generalized scalar function takes the row data for the row input to the generalized scalar function and rearranges the row data to be in a column format that the corresponding conventional column function can use.”

Although the Examiner objected to the Specification under 37 C.F.R. § 1.71, the Examiner’s objections are not reviewable on appeal. The Examiner did not object to the amended Specification under 35 U.S.C. § 132 and reject any affected claim(s) under 35 U.S.C. § 112, first paragraph. *Cf.* MPEP § 2163.06, “Relationship of Written Description Requirement to New Matter.”

Accordingly, we consider the Specification as amended. We find that the instant Specification provides a reasonably clear explanation in support of the claimed “generalized scalar function,” as submitted in the Specification amendment of October 6, 2003.

*Section 112, second paragraph rejection of claims 6, 13, and 20*

The Examiner finds that what was initialized, what was evaluated, and what was finalized in claim 6 is unclear. Ans. 8. Appellants contend that the initialization, evaluation, and finalization phases are performed in a conventional manner and are well understood by those of ordinary skill in the art. Br. 17.

We do not find any satisfactory response from the Examiner with regard to what Appellants contend to be “conventional” column function operations in claim 6. We conclude that the rejection fails to set forth an adequate basis for concluding that the subject matter of claim 6 is indefinite.

*Section 112, second paragraph -- Conclusion*

Based on the foregoing consideration of representative claims 1 and 6, we cannot sustain the rejection of claims 1-26 under 35 U.S.C. § 112, second paragraph.

## FINDINGS OF FACT

*Melton*

1. With reference to Figure 6, values which will be needed by the Offset function while processing future rows are “materialized” by storing them in auxiliary columns in the history buffer 140. While these auxiliary

columns are shown in Figure 6 as having generic auxiliary names, in each compiled query the columns in the table will have labels (if needed) and data formats assigned by the query compiler. Auxiliary columns may be used to replicate values stored in the corresponding rows, in order to make such values accessible while processing subsequent rows. More typically, auxiliary rows are used to store values that result from processing more than one row of data. For example, an auxiliary column can be used to store the running total (or the running minimum or running maximum) of a field in a column of the table. Fig. 6; col. 8, ll. 30-44.

2. In addition to the Offset function, several running and moving sequence functions are useful. Examples of such functions are:

RunningMin(a)--determines the minimum value of an expression “a” for all rows in a defined range of rows; ...

MovingAverage(a, window)--determines the average value of an expression “a” for the rows in a moving window having a specified number (window) of contiguous rows. Col. 10, ll. 15-34.

## PRINCIPLES OF LAW

The allocation of burdens requires that the USPTO produce the factual basis for its rejection of an application under 35 U.S.C. §§ 102 and 103. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d 1011, 1016 (CCPA 1967)). The one who bears the initial burden of presenting a prima facie case of unpatentability is the Examiner. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as

in the claim.” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

#### ANALYSIS -- § 102(e)

Appellants contend that “Melton fails to teach or suggest the use of the recited generalized scalar function in conjunction with a (pre-existing, conventional) column function.” Br. 19.

Appellants describe a column function as a function that performs an operation on data stored in a column (*see* Spec. 2:11-17). Melton describes a row function that operates on data stored in a row (*see* FF 1, 2).

The Examiner finds that the Offset function described by Melton is a scalar function. However, the rejection is not clear in pointing out where Melton might describe a “column function” as claimed.

Portions of the Answer, such as the rejection directed at dependent claims at the bottom of page 10, suggest that the operations described in column 10, lines 19 through 22 of Melton might be deemed to correspond to a claimed “column function.” Although the reference describes using columns to replicate values stored in corresponding rows, the rejection fails to demonstrate or explain how the artisan might consider a row function as described by Melton to be within the meaning of a “column function” as claimed.

In any event, the rejection fails to establish that Melton discloses performing a “column function” as recited in claim 1. The other independent claims (8, 15, and 25) contain similar recitations concerning a “column function,” which has not been shown in Melton.

“[A]bsence from the reference of any claimed element negates anticipation.” *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1571 (Fed. Cir. 1986). We therefore cannot sustain the § 102(e) rejection of any claim over Melton.

### CONCLUSIONS OF LAW

- (1) Appellants have not shown that the Examiner erred in concluding that claim 1 does not recite statutory subject matter.
- (2) Appellants have shown that the Examiner erred in concluding that claims 1 and 6 are indefinite.
- (3) Appellants have shown that the Examiner erred in finding that Melton discloses a column function as recited in claim 1.

### DECISION

The rejection of claims 1-26 under 35 U.S.C. § 101 as being directed to non-statutory subject matter is affirmed.

The rejection of claims 1-26 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is reversed.

The rejection of claims 1-26 under 35 U.S.C. § 102(e) as being anticipated by Melton is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 41.50(f).

AFFIRMED

Appeal 2009-000772  
Application 09/820,451

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